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ABSTRACT

This publication describes the Andrew Heiskell Library for the Blind and Physically Handicapped, a regional library for the National Library Service (NLS) example of the creative use of physical space and innovative technology. The publication focuses on the materials-handling system designed for the new facility, including system design objectives; before and after descriptions of how loading-dock and turnaround area operations work; and descriptions of materials-handling components, including tow line, scissors lifts, conveyor system, horizontal carousels and rewinding operations and machines. A preliminary planning chart showing service aspects to be considered, a chart of the first-floor layout of loading dock operations and equipment that moves materials throughout the building, and a chart of the layout of turn-around operations accompany the description. Background on the library's history and funding and a summary of renovation or building projects undertaken by 21 other NLS regional libraries over the past several years are also presented. (KRN)

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Projects & Experiments

National Library Service for the Blind and Physically Handicapped

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A library with a difference—

Innovative design and technology promote access and service

When the Andrew Heiskell Library for the Blind and Physically Handicapped opened in New York City on December 12, 1991, it brought to the NLS network a facility whose concept, design, and technology unite to deliver speedy and accessible services to its readers.

This new facility for the regional library, which is operated by The New York Public Library, provides a variety of barrier-free walk-in areas for patrons and highly efficient work areas for staff. In addition, it houses a new high-tech materials-handling system that is the first fully automated processing system in a library serving blind and physically handicapped persons.

This issue of *Projects & Experiments* will focus on that library as an outstanding example of the creative use of physical space and innovative technology to provide services specifically tailored to meet the needs of its clientele.

photo by Lisa Gabriel

The Andrew Heiskell Library for the Blind and Physically Handicapped in New York City.

Projects & Experiments **is published on an occasional basis to summarize and provide in-depth information on technical developments and long-range projects of the National Library Service for the Blind and Physically Handicapped (NLS), Library of Congress.**

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The Program
The National Library Service for the Blind and Physically Handicapped of the Library of Congress publishes books and magazines in braille and in recorded form on discs and cassettes for readers who cannot hold, handle, or see well enough to read conventional print because of a temporary or permanent visual or physical handicap.

Through a national network of state and local libraries, the materials are loaned free to eligible readers in the United States and to U.S. citizens living abroad. Materials are sent to readers and returned by postage-free mail.

Books and Magazines
Readers may borrow all types of popular-interest books including bestsellers, classics, mysteries, westerns, poetry, history, biographies, religious literature, children's books, and foreign-language materials. Readers may also subscribe to more than seventy popular magazines in braille and recorded formats.

Special Equipment
Special equipment needed to play the discs and cassettes, which are recorded at slower than conventional speeds, is loaned indefinitely to readers. Headphones are provided on request. An amplifier is available for blind and physically handicapped readers who are also certified as hearing impaired. Other devices are provided to aid readers with mobility impairments in using playback machines.

Eligibility
You are eligible for the Library of Congress program if:

- You are legally blind—your vision in the better eye is 20/200 or less with correcting glasses, or your widest diameter of visual field is no greater than 20 degrees.
- You cannot see well enough or focus long enough to read standard print, although you wear glasses to correct your vision.
- You are unable to handle print books or turn pages because of a physical handicap.
- Or, you are certified by a medical doctor as having a reading disability, due to an organic dysfunction, which is of sufficient severity to prevent reading in a normal manner.

How to Apply
You may request an application by writing NLS or calling toll-free 1-800-424-9100, and your name will be referred to your cooperating library.

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The library facility

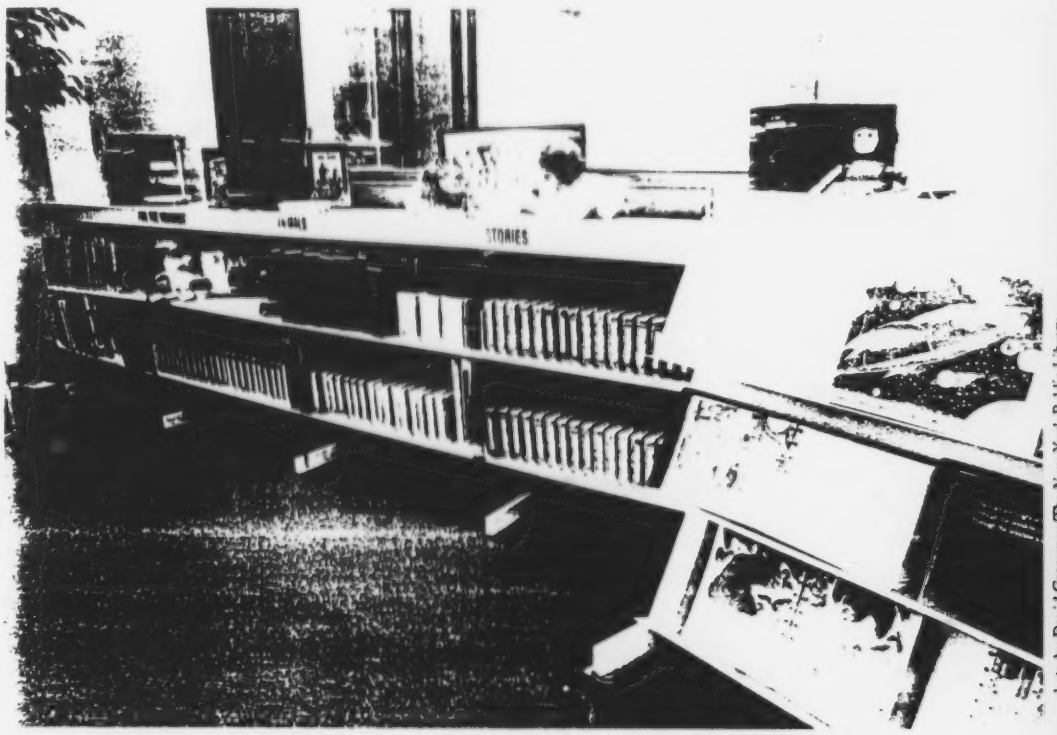
The Andrew Heiskell Library is located at 40 West 20th Street between 5th and 6th Avenues in downtown New York City. It occupies 43,000 square feet on six levels of a handsome twelve-story building erected in 1910. Its design represents an innovative adaptation of a vintage building previously used for manufacturing.

The library's inviting public spaces, including reading areas, open stacks for browsing, and meeting rooms, encourage independent use. Public spaces are barrier free and easily navigable through orientation to a perimeter wall, contain large-print and tactile signs, and have glare-free lighting. The twelve-foot ceilings, not uncommon in buildings of the early part of the century, add to the atmosphere of openness and light.

Ground floor. Most of the areas for visiting patrons are located on the ground floor and are accessible through a barrier-free lobby. This floor contains the reference desk and reading room, a meeting room, and a children's room. Shipping and loading operations, the mail room, bulk catalog storage area, and administrative offices are located in nonpublic areas.

The reading room has open shelving that includes a browsing collection of material in all formats for adults and young adults. Large-print and tactile signs guide readers through the stacks to material of interest. Tables and study carrels electrically wired for use with audio playback equipment and closed-circuit television magnifiers are available on this level.

A young patron gets help in sampling a print/braille book from the collection.



The children's reading room features book displays and browsable shelves.

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History and funding

The new library is named for Andrew Heiskell, a former chairman of the board and current trustee of the New York Public Library, who was instrumental, along with many advocacy groups, in achieving the necessary funding.

The new space was obtained and renovated with $16 million appropriated by the state in 1988, and replaces substandard space occupied by the library since 1953. Major support for construction came from the efforts of Governor Mario Cuomo to secure financing through the State Dormitory Authority, as well as through the support of many committed legislators.

Governor Cuomo said of the new facility, "This opening is a triumph for the thousands of blind and visually impaired readers who have long stressed the overwhelming need for a library that offers all the services sighted people take for granted. The state is proud to fund this fine library, which will serve some of our most resourceful citizens efficiently and with the dignity they deserve."

Several foundations and estates provided funds for general support, equipment and materials, and special projects such as the outdoor reading terrace.

The Andrew Heiskell Library is one of the oldest libraries in the country serving blind individuals. Richard Randall Ferry, a wealthy manufacturer who became blind, established the Free Circulating Library for the Blind in 1895. It was incorporated into The New York Public Library in 1903, and became one of the original nineteen regional libraries when the Library of Congress program was established in 1931.

It is also one of the largest regional libraries, serving approximately 14,000 registered patrons and circulating 500,000 recorded and braille books annually in the New York City area. The regional oversees two subregional libraries in Nassau and Suffolk Counties on Long Island. Other patrons in New York State are served by the regional library in Albany.

The regional library is administered by The New York Public Library, a nonprofit organization, with funds for staffing largely provided by the state through the Department of Education and funds for operation and maintenance of the building provided jointly by the state and the city.

The library maintains a collection of more than 515,000 titles in special formats, most of them on cassette. Recorded and braille books, along with playback machines for recorded material, are provided by the National Library Service for the Blind and Physically Handicapped, Library of Congress. The collection of 12,000 large-print books was developed with local funds through purchase.

The renovation was designed by Dennis Kowal Architects, with project development and implementation by Paul Segal Associates, Architects. Lehrer, McGovern, Bovis supervised construction and Wojciechowski Design handled graphics. York Hunter coordinated the purchase and supervised the installation of the materials handling system.

The children's room, off the main reading room, is flooded with natural light through tall, broad windows that face West 20th Street. Open shelving displays the juvenile collections of braille, recorded, and large-print books. Child-sized chairs and tables, some containing electronic equipment, furnish this ample space designed with school groups in mind. Close to both the library entrance and the meeting room, the children's room can host a variety of programming without disturbing adult patrons in adjacent areas.

Second floor. Two reading areas on this floor provide additional accommodations for patrons. One is located near stacks housing circulating braille and large-print materials. The other is an inviting outdoor reading terrace surrounded by trellises and plants.

This floor also contains multiuse conference rooms and workstations for clerical and professional staff.

Third floor. The major area for processing materials for patrons is located on this floor. The materials-handling center is linked by conveyers and lifts to the first-floor loading dock and stack storage on all floors, with workstations for staff to process materials along their route. High-speed machines will be used to rewind incoming cassette tapes. (See article on pp 5 – 14)

Located nearby are the computer room, where patron records and circulation databases are stored, and the machine repair shop for evaluation and repair of playback equipment.

A staff lounge overlooks West 20th Street.

Fourth floor. This floor is devoted to

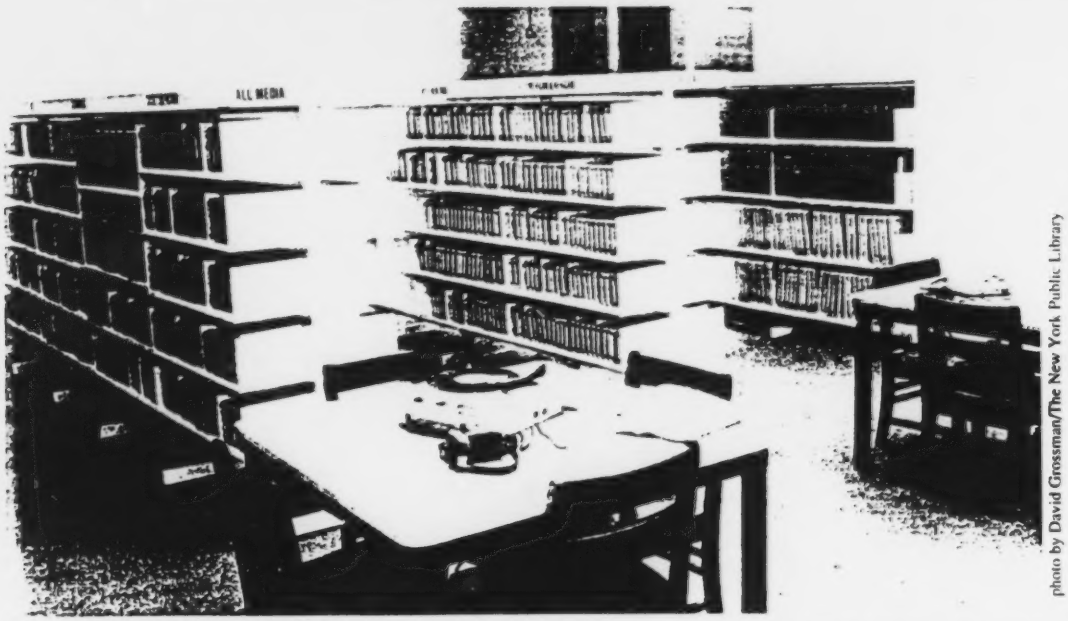


photo by David Grossman/The New York Public Library

The adult reading room houses large-print, recorded, and braille books accessible for browsing and provides playback machines for personal reading.

recorded materials. The audio-book studio includes three state-of-the-art recording booths, editing workrooms, and a volunteer lounge. There is also tape-duplicating equipment and shelving for the master-tape collection and for multiple copies of recorded materials.

Fifth floor. Multiple copies of recorded books are stored here for use in mailings to patrons. The space is sufficient for future growth.

Basement. Custodial staff work from here. Space is provided for storage of equipment, catalogs, and other informational material.

The materials-handling system

The Andrew Heiskell Library for the Blind and Physically Handicapped ships approximately 500,000 braille and talking books each year to its 14,000 registered patrons. On a daily basis, this material averages 833 cubic feet. At the same time, incoming recorded and braille books must be sorted, cassette tapes rewound, scanned by the computerized circulation system, and stored for future orders.

The library's new high-tech materials-handling system provides the foundation for this process. More than 300 feet of motorized conveyors and pneumatic vertical lifts join all six levels of the library. Mechanisms similar to those used by the airline and automotive industries to move baggage and auto parts are integrated into the system to enable library staff to send or receive material quickly from different floors. Though useful for retrieving items from the stacks for a patron waiting in the reading room, the system is primarily intended to expedite the high-volume shipping operation.

The cycle begins with a daily truck delivery from the post office. Tow lines recessed in the loading-dock floor haul bulk mail containers from the truck to a sorting table, where items are deposited into smaller totes destined for the processing station on the third floor. Photoelectric controls guide each tote to its destination up a series of spiral tracks and conveyors.

Because close to 90 percent of returned books have already been requested by other patrons, the books are temporarily shelved in one of four 25-foot-long revolving storage carousels. These books need to be turned from incoming to outgoing rapidly—in what is therefore called a "turnaround" area. The computer compares incoming titles with requests and automatically generates mailing labels for the items that need to be shipped out.

The carousels, a larger version of the moving clothing racks common in dry-cleaning stores, then essentially bring the shelving to the materials-handling staff. With the printed mailing labels in hand, a staff member removes the item from the carousel, charges it out to the patron, affixes the label, and places it in a tote bound for the loading dock for transfer to an outgoing bulk-mail container, and eventual delivery to the patron.

A quest for service excellence

The New York Public Library's Andrew Heiskell Library for the Blind and Physically Handicapped

This article was provided by Joe Jarkon, designer of the materials-handling system at the Andrew Heiskell Library for the Blind and Physically Handicapped.

The New York Public Library determined to pursue improved consumer service at the Andrew Heiskell Library for the Blind and Physically Handicapped, now operating in a newly renovated building located in the heart of New York City's historic "Ladies Mile" shopping area. Improved service and capability were to be achieved by facility and systems design that would automate the storage, mailing, and receiving operations.

This article focuses on the materials-handling system designed for the new facility. It details the system goals and achievements, its equipment components, and its integration with the general library operations.

The materials-handling system will contribute to efficiency, cut costs, and reduce turnaround time. The design was planned to provide a comfortable environment for the workers and for patrons who seek on-site services. We hope that other libraries serving blind and physically handicapped readers will benefit from the experience gained in this project.

Industry data—bench marking

Network libraries. In the planning stage, the library staff investigated the facilities and approaches of other libraries in the NLS network. Today this network consists of 145 cooperating libraries nationwide. The network, organized in regional and subregional libraries, has changed over its more than sixty-year history from a small service operating out of a few local libraries to a large mailhouse industry. This industry now serves a readership of more than seven hundred thousand blind and physically disabled people.

NLS libraries are increasingly aware of the need for modernization and automation. This approach is necessary to cope with growing demand for services and rising costs for meeting this demand. The expanding need to use space effectively, to provide on-site service, and to handle increased circulation were the factors that gave the materials-handling systems design an important role in planning the new facilities.

Recording for the Blind. Library staff also studied the achievements of Recording for the Blind (RFB), whose production facility in Princeton, New Jersey, houses a master-tape library of approximately eighty thousand recorded textbook titles.

RFB moved to its newly designed automated production and distribution facility in 1983, and the remarkable success of the systems there is a good indication of automation's potential. In the first two years, the payback was an increase in productivity of 21 percent, an increase in circulation of 27 percent, and a reduction in turnaround time for orders from an average of three weeks to forty-eight hours. Now, 50 percent of the orders are filled within twenty-four hours of the time they are received.

RFB's production personnel were reduced by attrition from thirty-nine to thirty-two people, and the number was increased again only after six years of operation, when the volume of the yearly circulation had almost doubled. The resulting savings have been about $400,000 a year, 13 percent of RFB's former yearly budget.

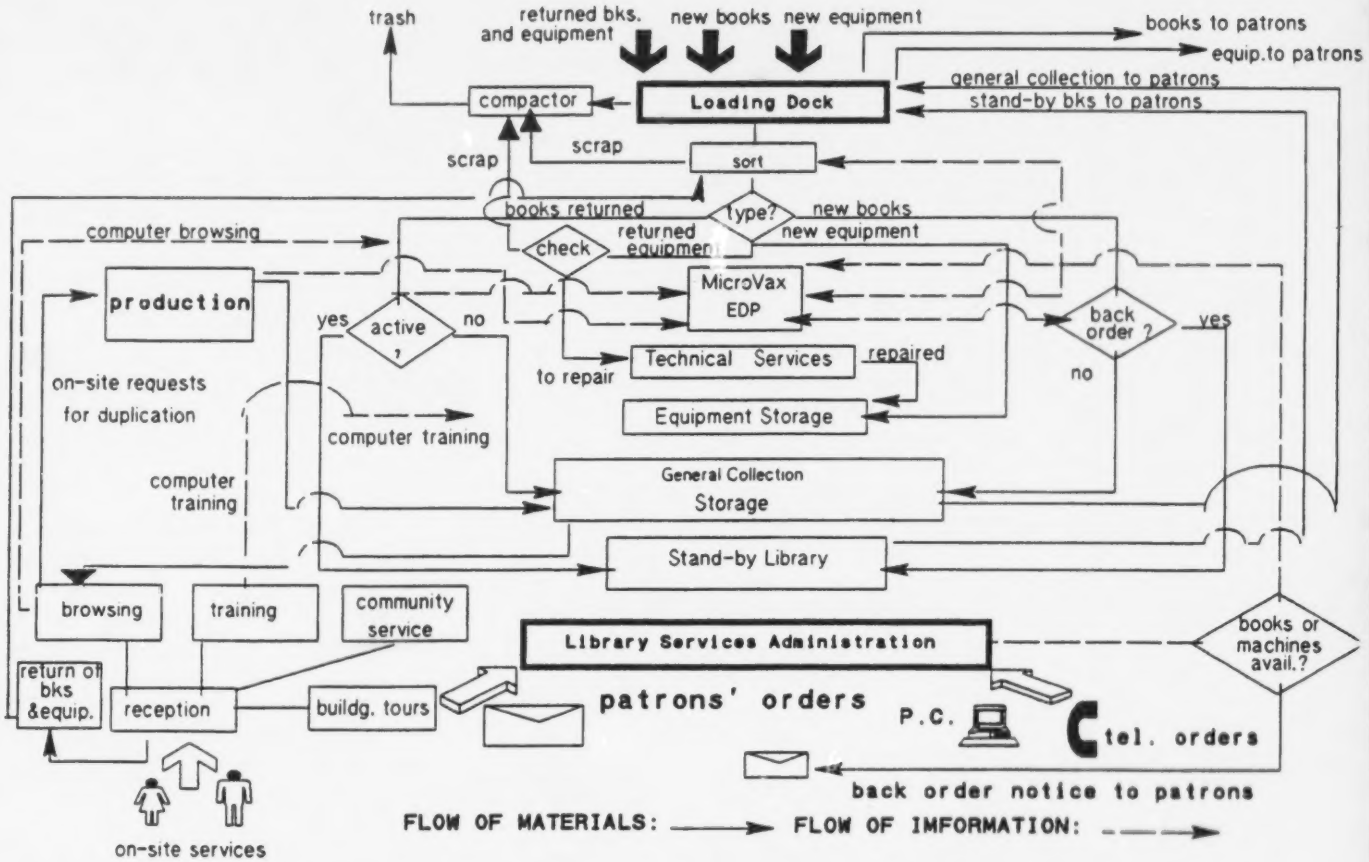
System design objectives

The focus of the materials-handling-system design is to provide the Heiskell Library with an automated system that will enable it to carry out its task in the most productive and cost-efficient manner and in a pleasant, modern working environment. Most important, the system and its components will enable the library to expand its services by more than 100 percent and to satisfy the increasing demand and mail requests in a shorter turnaround time.

The materials-handling-system design allows for flexibility in assigning staff to reinforce backed-up areas. It enables a continuous flow of the returned books to temporary storage, while new orders are retrieved and processed for mailing.

The goal was to handle a circulation of up to 5,000 books a day in the same ratios current for the different media: cassette books (80 percent), flexible discs (10 percent), rigid disks (7 percent), and braille books (3 percent). The challenge at the Heiskell Library was to design a system that would work effi-

FLOW OF MATERIALS AND INFORMATION – chart 1



This preliminary planning chart shows service aspects to be considered in the flow of materials and information, and illustrates the complexity of interactions involved. The MicroVax-EDP box near the center of the diagram indicates the library's computer system, which controls the storage and dissemination of information.

ciently within the constraints of the building's vertical layout of five floors and a basement level.

Library production operations

The library operations that will benefit from the materials-handling system and its components are:

- unloading incoming bulk-mail containers (BMCs) provided by the post office from the delivery truck, emptying them, and distributing the materials to the process workstations; loading outgoing orders to BMCs and loading the BMCs on trucks;
- sorting the returned books by media: cassette books, which have to be checked and rewound, and braille and disc books that can be sent directly to storage;
- checking returned cassette books and rewinding the cassettes;
- discharging returns and shelving them;
- retrieving, charging, and shipping outgoing orders; and
- checking returned playback machines, discharging them, repairing them when needed, shelving them, and retrieving, charging, and shipping new machine orders.

Work-force analysis and design ramifications

The work-force analysis showed that in the old facility the library needed sixteen people for a daily circulation level of up to 2,000 books, and would need two more people for inspec-

tion and rewinding, which were not then being done. This number included pages, who are usually students, and other full- or part-time employees. To raise the level of circulation to an average of 3,500 books a day—if possible with the previous manual system—the library would have required twenty-two workers.

The automated materials-handling system and the new methods will function with fourteen people:

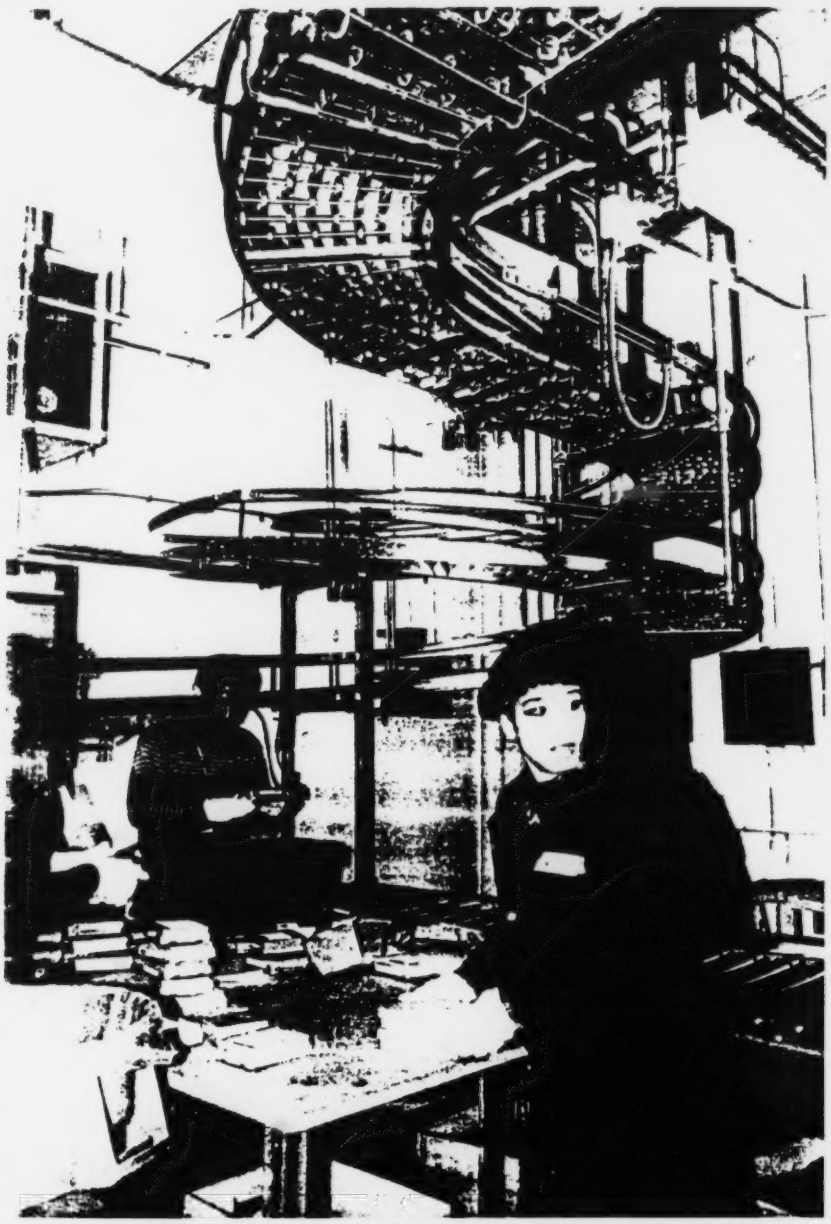


photo by David Rose, from The New York Public Library

Recorded books on cassettes are checked in by library personnel at the beginning of the new automated materials-handling system designed especially for the Heiskell Library.

operating loading dock	2
sorting materials	2
checking and rewinding	4
entering new inventories	1
discharging and storing	2
retrieving and charging	2
handling materials	1
total	14

With this automated system the library will save the cost of eight people, a 36 percent reduction. In addition, this same staff, after being trained, will be able to raise the daily volume to 5,000 books at peak times. These savings will pay back the investment in equipment in less than five years. The system will enable the library to achieve its objectives of increasing circulation and cutting turnaround time, thus improving its services.

How the system works: before and after

Loading-dock operations

Before. In the old building, when delivery trucks were unloaded, the BMCs were delivered via the freight elevator to the basement, one level below the loading-dock area. In this area the BMCs were opened and the incoming materials were sorted on the BMCs' folded doors.

Braille books and recorded discs were sorted out and, because of the smaller volume, sent to the turnaround area on the second floor by hand truck or on the freight elevator.

The returned cassette books were opened, checked, and if complete, the books were organized into a second empty BMC for delivery to the second floor where the turnaround area was located. The loaded BMCs, weighing close to 1000 lbs. each, were pushed by two or more employees about twenty feet to the elevator and delivered to the second floor by at least one employee.

On the second floor, additional help was provided to push the BMCs to the turnaround area about twenty feet away from the elevator.

After. The materials-handling system in the new facility has the following features:

- a scissor-lift dock platform that substitutes for a normal loading-dock facility;
- a towline that operates with a remote control button, eliminating the need to push BMCs manually from the delivery truck to the workstation;
- a scissor lift to raise the BMC to work station height;

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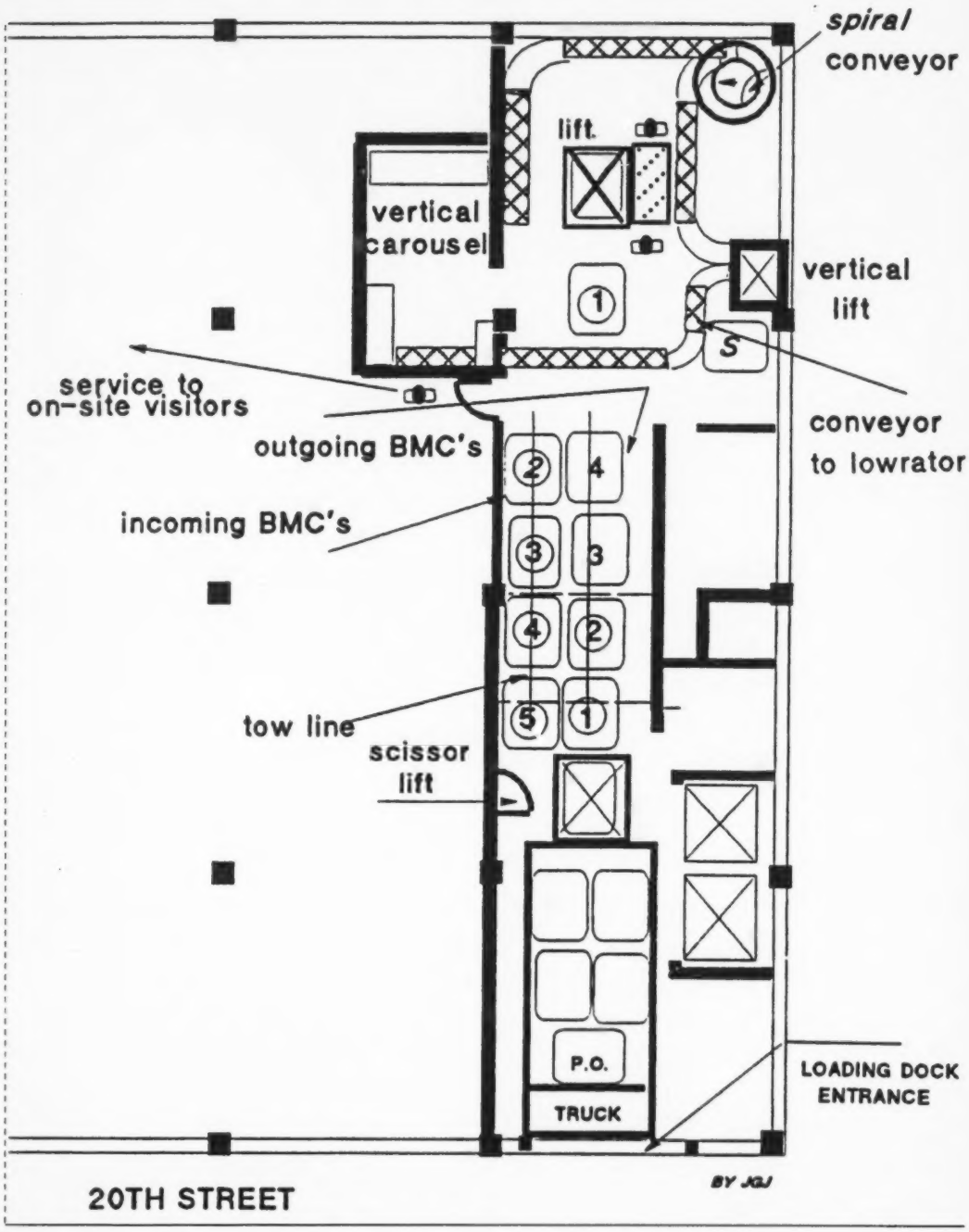


Chart 2. First-floor layout of loading-dock operations, lifts, and carousels designed to move materials throughout the building. Patron-service areas, located to the left of this diagram, occupy most of this floor.

- a benchtop for sorting the incoming materials;
- a conveyor line that is connected by an "intelligent" reciprocating vertical-lift system to every floor in the building and to the on-site services area in the library;
- a vertical carousel that connects the loading-dock area with the basement, where catalogs and other promotional materials are stored, to allow efficient flow of these materials to library patrons.

Benefits. The new system increases productivity by:

- eliminating the need to move BMCs manually;
- using the conveyor and vertical lift to deliver materials in totes to their final destinations, thus eliminating the need for double handling of materials from one delivery container to another;
- enabling quick storage and retrieval operations by use of the automated carousels that bring the required material directly to the front workstation.

Operations in the turnaround area

Before. With the old method, BMCs were brought to the workstation on the second floor for charging and discharging orders and returns. The station had computer terminals and was located near the turnaround area shelving.

After. In the new system, cassette books can be opened at rewinding stations next to the main conveyor line and checked for their content (to determine if all cassettes are present

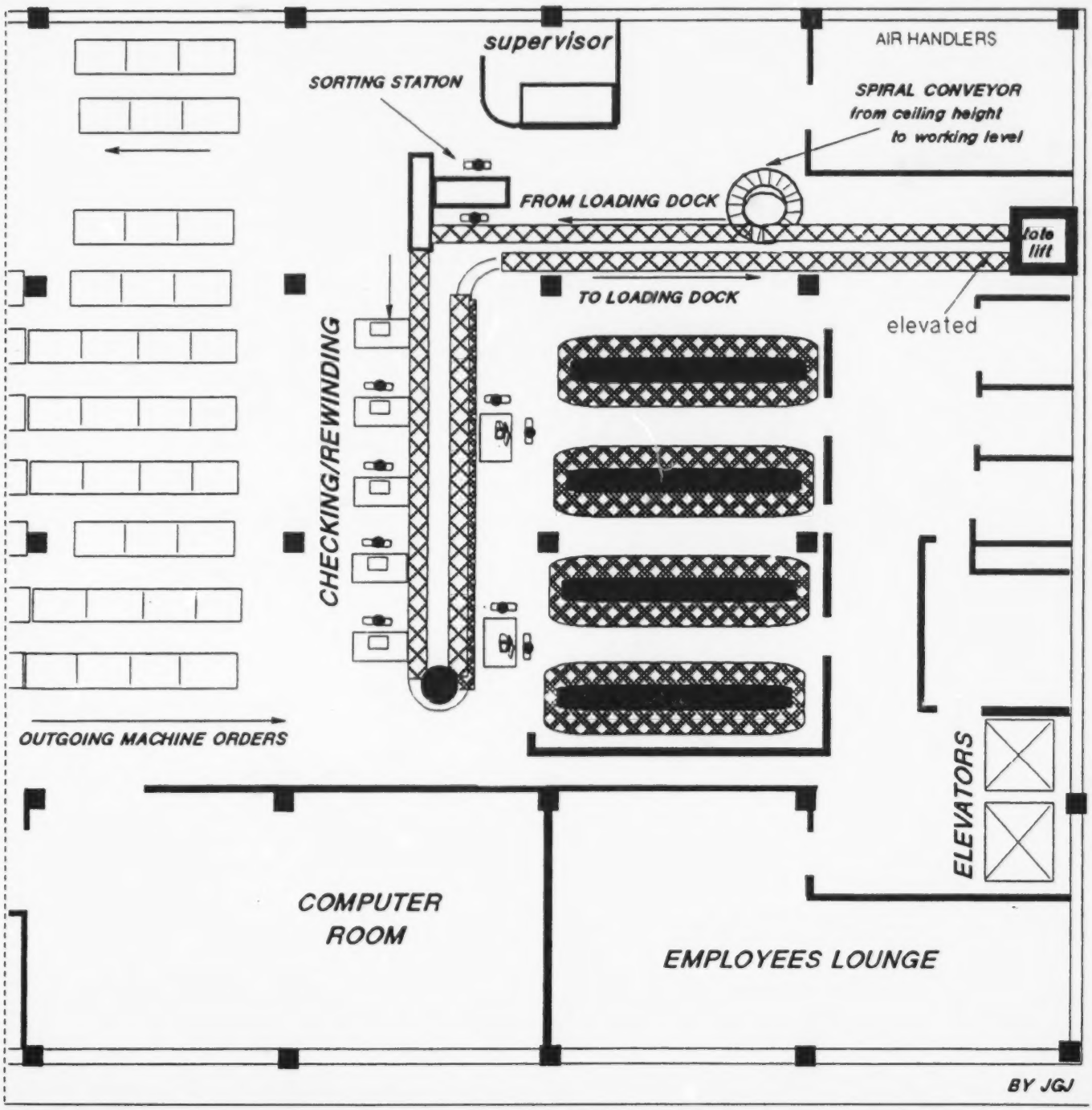


Chart 3. Third-floor layout of turnaround-area operations. Horizontal carousels are shown centrally, with conveyor belt and workstations nearby. The machine-repair and storage areas occupy the rest of this floor.

and belong to the same title), and all the cassettes can be rewound.

In the new area, the returning books are stored on four carousels that occupy an area of only twenty by forty feet and can store either a combination of braille, cassette books, and discs, for a total of 20,000 items, or 40,000 cassette books, four cassettes per plastic container.

One team of two people retrieves orders from two assigned carousels, charges the orders by computer, and sends them via the conveyor in totes to the shipping area.

Simultaneously, a team of two to four people can check and rewind returned books, which then proceed by conveyer to the discharge station. The returned books are discharged at a computer terminal and stored on the other two carousels. On the following day, books will be drawn from these carousels for shipping. The pairs of carousels alternate daily between receiving and shipping.

Benefits. The turnaround area modifications by the automated system of carousels and conveyors are the main contributors to productivity, savings in staff, and reduction in turnaround time for mailing operations.

The basic differences between the old turnaround area and the new one are in the storage and retrieval system by carousels rather than conventional shelving, and conveyor lines rather than manually handled heavy BMCs. These capabilities provide the library with the capacity to handle, with two teams of two people each, all the charging and discharging operations for a volume of up to 5,000 books a day on peak days.

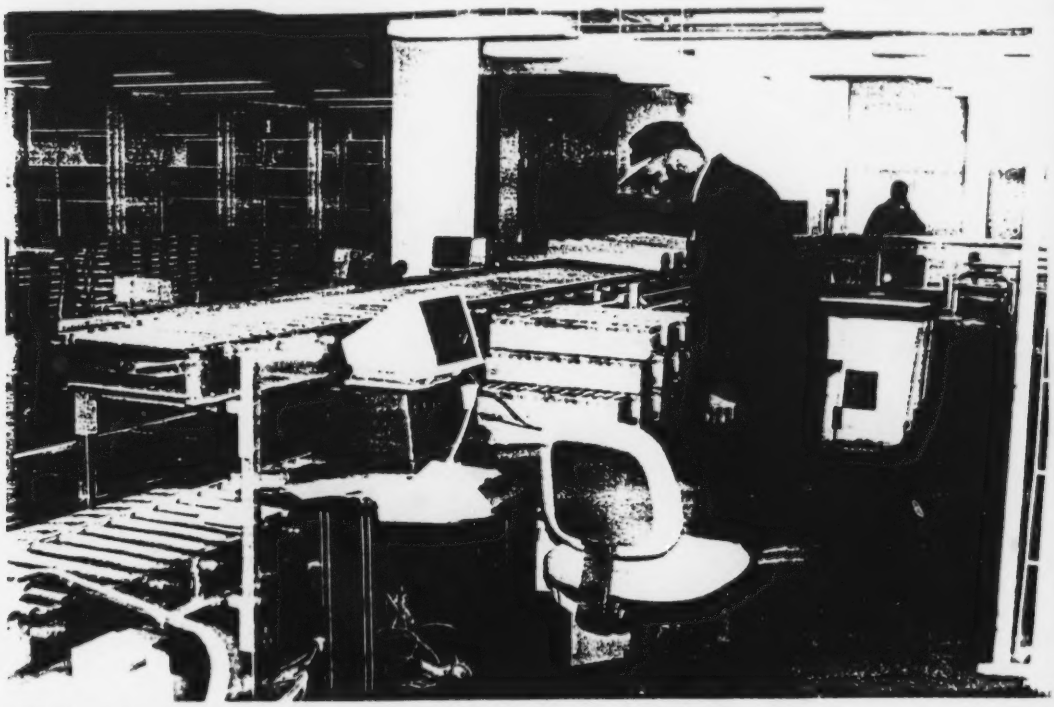
Materials-handling system components

Tow line

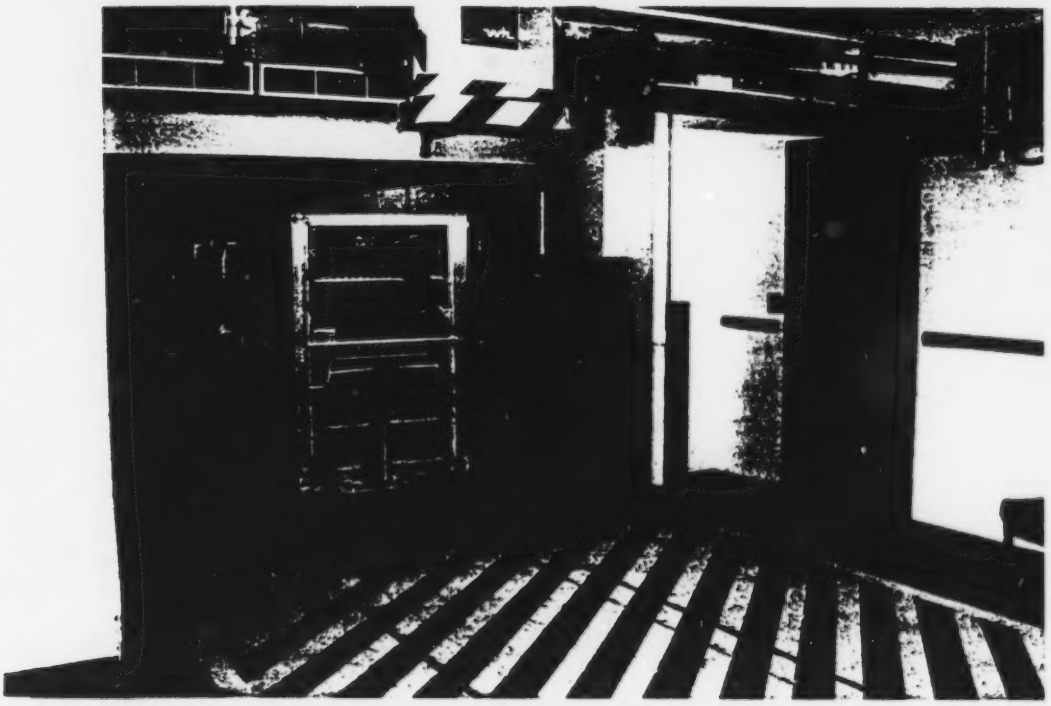
Using the tow line located at the loading dock, BMCs can be moved between the receiving gate and the receiving workstation. This station is responsible for opening the books returned and distributing them to their locations. This line is manufactured and installed by S.I. Handling, a Philadelphia company that provided the same tow lines to the U.S. Postal Service.

Special features:

- Two forty-foot lines, "incoming" and "outgoing." Each can move five loaded post office BMCs carrying twelve hundred pounds each at a speed of forty-six feet per minute.
- Line design matching the BMC's locking mechanism that helps bolt post office BMCs



Workstation in the turnaround area of the materials-handling system where returned books are charged in and can be charged out immediately without reshelving.



Bulk mail containers loaded with incoming or outgoing books travel by tow lines, freeing library personnel from the need to move such heavy materials manually.

to the line every twelve inches.
- Operation from two locations: one from the truck-unloading location and the other by remote control from the BMC unloading station at the conveyor line.
- Ability to move BMCs to the unloading station and, after being loaded with outgoing orders, back to the front gate, forty feet away.

Scissor lifts

Two scissor-lift platforms, manufactured by the Advanced Lift Corporation, with a capacity of 4,000 lbs. are being used as follows:
- A front lift is used to unload incoming BMCs from the trucks that deliver them, because the building's design will not accommodate a normal loading dock. This lift permits unloading directly from the truck level. A twelve-inch unloading deck extends to level the truck floor with the scissor lift.
- A rear scissor-lift table is used for bringing one BMC at a time to the workstation level. At this level, the side door is opened, and the team in charge sorts the returned books by medium and sends them via the horizontal and vertical conveyor system to the turnaround area or other locations as needed.
- When lowered, the lifts are level with the floor and do not interfere with other loading-dock activities.

Reciprocating vertical and horizontal conveyor system

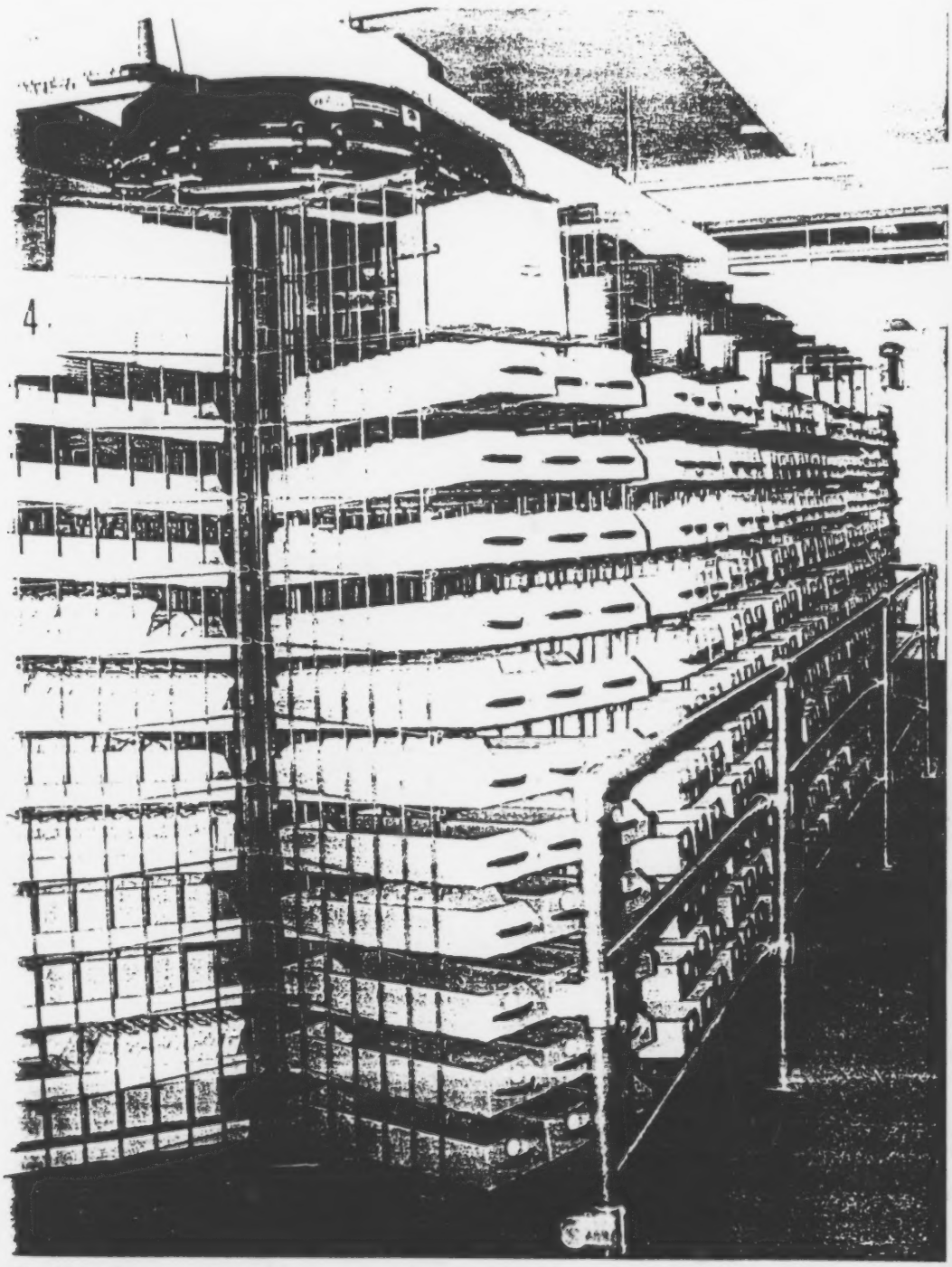
This "smart" system is the backbone of the materials-handling system. The vertical conveyor, manufactured by the Verticon Corporation, is integrated with a horizontal conveyor manufactured and installed by W&H Systems Inc., of Carlstadt, New Jersey. The system's purpose is to distribute the incoming and outgoing books throughout the five building floors.

Special features:
- With 280 feet of eighteen-inch-wide powered and free-gravity horizontal combinations, this conveyor is integrated with the sixty-five-foot-high vertical conveyor. This system moves all incoming and outgoing books to and from the loading dock area and to all five library floors.
- This system can move twenty-five totes per hour to the shipping area and simultaneously deliver another twenty-five totes from the receiving area to the turnaround area on the third floor.

Lowrator. The integrated vertical and hori-

zontal system has a smaller vertical conveyer extension that delivers special orders for on-site services to visiting patrons. This line has been assigned the first program priority, and special orders can be delivered immediately from any floor that stores the requested materials.

Horizontal carousels. Four horizontal carousels manufactured by White Storage & Retrieval Systems Inc. of Kenilworth, New Jersey, were installed on the third floor to serve the turnaround area.



Horizontal carousels holding cassette, disc, and braille books put any title within easy reach of library personnel.

Special features:

- These carousels, which contain between twenty and forty thousand cassette, braille, and disc books (depending on the mix of small and large containers), are occupying an area of only forty by twenty feet. Their capability to rotate and bring forward the content of their shelves saves many staff hours of storage and retrieval that are the main operations of the turnaround area.
- The carousels have a low profile; they are less than eighty inches high. All of their shelves are accessible from the floor level. Workers may require only the help of a step stool to reach the top shelves, and these shelves are used for storing packing materials and other slow-moving items that are seldom needed.

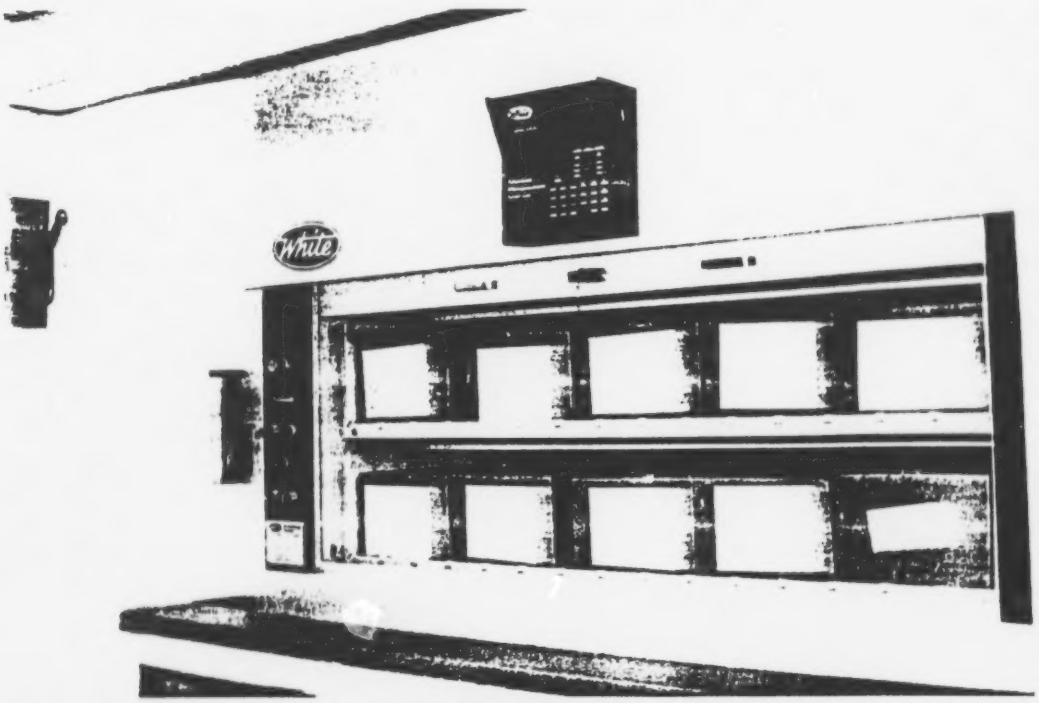
Vertical carousel. A vertical carousel, manufactured by White Storage & Retrieval Systems Inc., connects the basement and the shipping area on the first floor. Its purpose is to provide storage for catalogs and other promotional materials. The carousel was necessary to compensate for the very small area allocated for the shipping operations on the first floor.

Special features:

- The total height of the vertical carousel, rotating to and from the basement floor and the first floor ceiling, is twenty-four and one half feet. It has forty-four shelves fifty-six inches wide and eighteen-and-one-half inches deep. This carousel moves at forty feet per minute, and each shelf can carry up to six hundred pounds of load.
- The carousel carries 220 cartons containing catalogs and promotional materials required for use in daily mailings. These cartons can be replenished from the storage location in the basement. Workers can access the carousel from the basement and also from the first floor. In this way the shipping team has access to this material at all times from the shipping area on the first floor.

Rewinding operations and machines

The newly installed systems now enable the library to comply with the NLS policy of rewinding all cassettes that are returned unwound and checking all returned materials before circulating them. This commitment to quality can be costly in terms of equipment and labor. However, by using proper equipment and utilizing the workstations located along the conveyor line that delivers returned books to the turnaround area, the library will be able to carry out this task efficiently and economically.



The vertical carousel holds 220 cartons of promotional materials and catalogs and is accessible from the basement and first floor levels.

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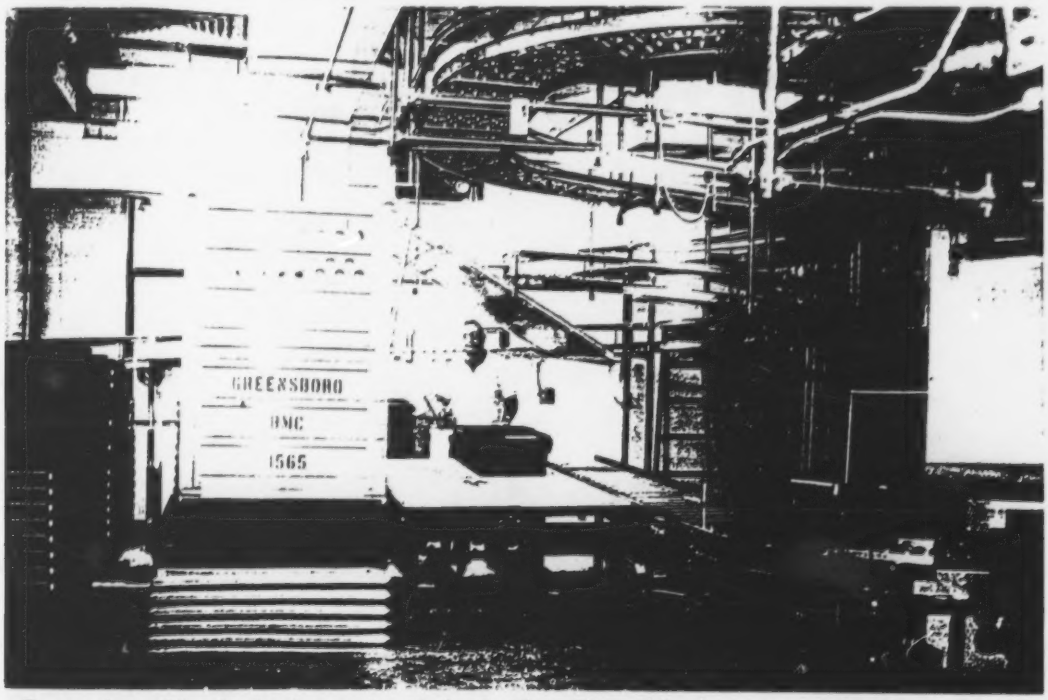


Processing of books begins and ends in the first floor shipping area of the Heiskell Library where bulk mail containers are loaded and unloaded.

Recommended rewinding machines are the MCS Speedwinder JW-4-4 and JW-8-8, which hold either four or eight cassettes and can rewind a C-90 cassette in forty-five seconds. The system is direct-drive and uncomplicated, with an individual motor for each position. The MCS Speedwinder was tested and is being used by RFB; it is also approved by NLS technical authorities.

Project summary and conclusions

The Andrew Heiskell Library has accomplished a long-time dream to move to a new facility and pursue excellence in service to its patrons. Totes of books returned and books to be mailed are rolling over conveyor lines and materials are being delivered to patrons much more rapidly than was possible before.

This article has focused only on the materials-handling system. Helping to create that system and seeing it successfully implemented was a most challenging and satisfying experience.

This new showcase is well worth a visit by staff members of other libraries. Each library may find answers to different questions and solutions for its problems. One can find in this new facility the many well-designed features described in this publication.

At a time of limited resources and restricted funds available to libraries, automated materials-handling systems are an option for cutting costs, boosting productivity, and shortening turnaround time to meet patron demands.

About the author

Joe Jarkon, BSIE, a NYU-trained industrial engineer, is the principal of JGJ Consulting, Services for the Blind. He served as vice president, operations, for Recording for the Blind from 1980 to 1989 and designed and implemented their automated system in a modern facility in Princeton, New Jersey. In 1989 Jarkon retired and founded his own consulting company to assist libraries for the blind improve their services.

In 1990 he was brought in by Dennis Kowal Architects to design the materials-handling system for the Heiskell Library, and in 1991 he implemented the system with MHE Systems Inc., a Long Island company that was awarded the project by The New York Public Library.

Network libraries improve facilities, accessibility

The New York City regional library is one of several network libraries that have moved into new facilities or undertaken renovations to existing space in recent years. Many other libraries are in the process of building or have plans for future projects.

Planning for almost all of these facilities has focused on accessibility for patrons, both to the building and to the collections. Although most libraries continue to provide service almost entirely by mail, they place an increased emphasis on use of the library for browsing and for reference, especially through the use of computer systems, magnifying aids, and other assistive devices for reading. Equally important are storage and retrieval capabilities for the ever-increasing circulation of books to patrons.

The following list shows recent projects at regional libraries.

Alaska. The library has moved into the Post Office Mall in downtown Anchorage, a location that makes mailing extremely easy. The facility is convenient for walk-in patrons, has three conference rooms, and provides excellent storage space.

California (northern regional in Sacramento). Funding was provided and groundbreaking held in 1991 for an annex to the state library that will house the regional. The building is several years from completion.

California (southern regional in Los Angeles). A new addition for the Braille Institute of America was completed in 1990 with completely new and enlarged space for the regional library containing 13.6 linear miles of shelving.

Colorado. A new state-funded building for the regional library opened in February 1992. The barrier-free facility is on a single floor and contains a technology center and a children's center.

Florida. Along with renovations to existing space, two buildings are being added to the regional library complex. Growth has been phased in over many years.

Louisiana. Renovation and expansion is planned for the state library building, which houses the regional library. Budget problems may cause delays in implementation.

Maryland. A new building adjacent to the Enoch Pratt Free Library for the regional library is funded and currently under construction, with completion scheduled for late 1992.

Michigan (northern regional in Lansing). In 1988 the library moved into a new building that also houses the state library and museum.

Minnesota. The library is adding two extensions for space and to create a welcoming entrance.

Missouri. The library moved last year into a new building with the state library and archives.

Nebraska. The library facilities in the Nebraska Library Commission building were remodeled in 1989, unifying sections that had been located throughout the building. The regional, which occupies the entire first floor, is visible to the public from the outside and accessible.

Nevada. The library is moving this fall into a new building with the state library.

Ohio (northern regional in Cleveland). The library is planning for space in an offsite location for the next few years as a result of renovations at the Cleveland Public Library.

Ohio (southern regional in Cincinnati). The Cincinnati Public Library is planning a new building that may house the regional library. Budget problems could cause delays in implementation.

Oklahoma. In 1991 the library moved into a new building constructed specifically to house the regional library.

Pennsylvania (western regional in Pittsburgh). The Carnegie Library has purchased the building that it rented for many years and has completed the first phase of a multiphase renovation.

Puerto Rico. The library has received an LSCA grant to build on land already available.

South Carolina. In 1987, the library moved to a renovated historic building, which was the world's first hydroelectric cotton mill when it opened in the late 1800s.

Utah. A renovation at the state library has provided the regional library with a separate and accessible entrance for patrons.

Virginia. Groundbreaking for a new building took place in the fall of 1990. Construction has not begun.

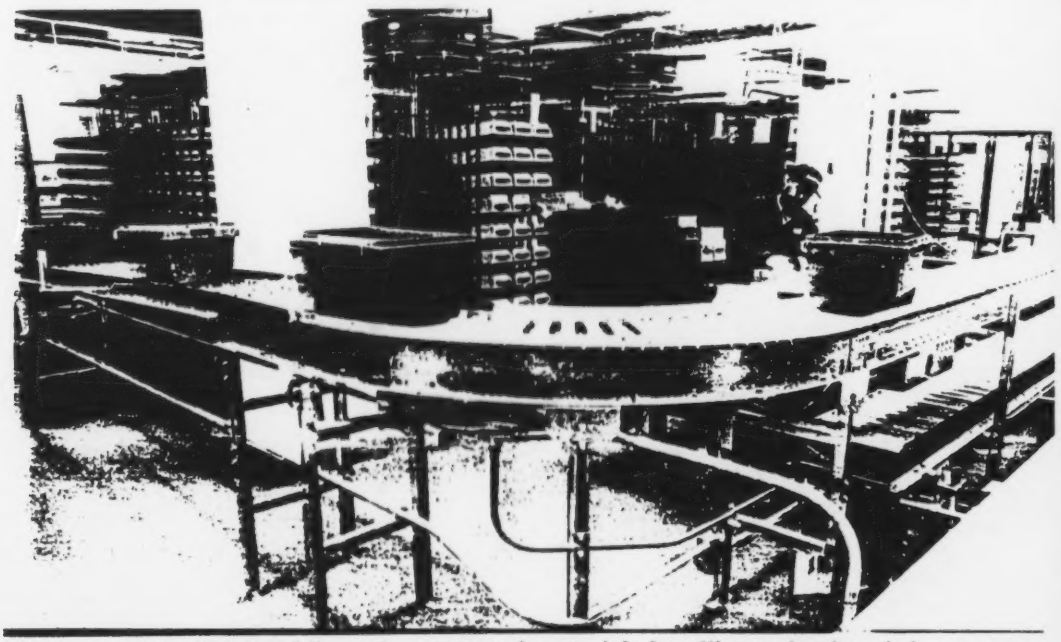
Virgin Islands. The library recently moved into a new building because of hurricane damage to the previous structure.

Some regional libraries have provided accessible space and special services for patrons for many years. Notable among these is the east-

ern Pennsylvania regional in Philadelphia. The library is located on the ground floor of a building where other agencies provide services for blind and physically handicapped individuals, including rehabilitation services that bring patrons to the premises. Besides a browsing collection, special services include touch art and a volunteer-operated store featuring patron-oriented materials.

Other areas promote accessibility primarily through subregionals located throughout the state, bringing services geographically closer to the patrons served. Many of the ninety subregionals have also moved into more accessible or more conveniently located facilities.

In addition, network libraries have also increased the number of deposit collections in local libraries, nursing homes, senior centers, and other facilities serving eligible individuals. These collections provide books and machines that patrons can borrow directly, rather than receiving materials through the mail.



The heart of the Heiskell Library's automated materials-handling technology is its conveyor system, shown here in the turnaround area.

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